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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,499	12/19/2001	Robert Chipin Fu	856550-45	2494

7590 08/27/2003

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EXAMINER

RUDDOCK, ULA CORINNA

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/028,499	FU ET AL.
Examiner	Art Unit	
Ula C Ruddock	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-19 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites the limitation "the cut-resistant layer" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is suggested that Applicant amend the claim to depend upon claim 17.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fingerhut et al. (US 6,237,793) in view of Dickson et al. (US 5,851,932). Fingerhut et al. disclose an explosion resistant aircraft cargo container (abstract). Sheets of explosion

resistant, high tensile strength material include fibers such as aramid fibers (KEVLAR™ fibers) or polyethylene fibers (SPECTRA™ fibers) and can be in the form of a woven fabric (col 6, ln 45-61). At least one layer of film adhesive helps the bonding of the explosion resistant sheet of material (col 6, ln 63-67). The film adhesive is preferably a thermoplastic polymer such as a thermoplastic ionomer, a polyurethane resin, or an epoxy resin (col 7, ln 7-21). An insulation or padding material can also be included among the explosion resistant sheet material (col 7, ln 54-58). It should be noted that the Examiner is equating the insulation or padding material of Fingerhut et al. to the cushioning material required in the present invention. Fingerhut et al. disclose the claimed invention except for the teaching that the panel comprises a first and second fiber-reinforced face skin.

Dickson et al. disclose a ballistic armor laminate comprising a front face and a back face portion (col 2, ln 61-65) comprising a stack of phenolic prepgs of woven glass strands (col 2, ln 65-67 to col 3, ln 1). It would have been obvious to one having ordinary skill in the art to have used Dickson's front and back face stacks of phenolic prepgs of woven glass strands as the first and second face skins on the explosion resistant sheets of Fingerhut et al., motivated by the desire to create an explosion resistant material that absorbs and distributes or dissipates a substantial portion of the impact forces.

With regard to claims 2, 3, 5, 6, 9, 10, 11, 14, and 16, it should be noted that optimizing variables such as area density, rigidity, tensile strength, the number of fabric sheets, panel thickness, density, and face skin thickness are all result effective variables. For example, the higher the tensile strength of the panel, the greater the durability of the

panel. The greater the panel and face skin thickness in the composite, the greater the ballistic resistance property of the panel. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the panel have an area density of not less than 1.8 pounds per square foot and not greater than 2.5 pounds per square foot, a panel rigidity of not less than a honeycomb-core structural panel of equivalent thickness, fabric tensile strength not less than 100 pounds per inch of width for every ounce per square yard of fabric weight, 12-33 sheets of the fabric layer, a panel core that has a thickness of 0.25-2 inches, a cushioning material density of 3-8 pounds per cubic feet, and a first and second face thickness of 0.02-0.10 inches, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have optimized the panel's area density, rigidity, tensile strength, number of fabric sheets, panel thickness, density, and face skin thickness, motivated by the desire to create a ballistic panel that is lightweight yet has increased ballistic resistance.

With regard to claims 4 and 6, although the combination of Fingerhut et al. and Dickson et al. does not explicitly teach the claimed ballistic resistance, it is reasonable to presume that the ballistic resistance property is inherent to the explosion resistant material of Fingerhut et al. and Dickson et al. Support for said presumption is found in the use of like materials (i.e. high tensile strength fabric, film adhesive material, cushioning material, and first and second fiber-reinforced face skin material). The burden is upon Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 495. In addition, the presently claimed

property of a ballistic resistance not less than level IIIA as set forth in National Institute of Justice Standard 0101.04, would obviously have been present once the product of Fingerhut et al. and Dickson et al. is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fingerhut et al. (US 6,237,793) and Dickson et al. (US 5,851,932), as applied to claims 1-12 above, and further in view of Bachner, Jr. (US 5,918,309). Fingerhut et al. and Dickson et al. disclose the claimed invention except for the teaching that the cushioning material comprises a polyurethane foam material.

Bachner, Jr. disclose a protective garment comprising woven sheets of high tensile strength fibers such as aramid, polyethylene, or PBO fibers (col 5, ln 62-63 and col 6, ln 3-17) and a thermoplastic polyurethane honeycomb cellular core (col 3, ln 39-40) surrounded by polyurethane film sheets (col 3, ln 63-65). It should be noted that the Examiner is equating the polyurethane honeycomb cellular core to the polyurethane foam material disclosed in the present invention. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used Bachner's polyurethane honeycomb cellular core in the explosion resistant material of Fingerhut et al. and Dickson et al., motivated by the desire to create an explosion resistant material that has increased protection against impact forces.

6. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fingerhut et al. (US 6,237,793) and Dickson et al. (US 5,851,932), as applied to claims 1-

12 above, and further in view of Dunbar (US 5,200,256) or Goerz, Jr. et al. (US 5,472,769).

Fingerhut et al. and Dickson et al. disclose the claimed invention except for the teaching that the panel further comprises a stainless steel mesh cut-resistant layer.

Dunbar discloses a composite bulletproof panel comprising aramid or polyethylene fibers compression molded with a binder resin (col 4, ln 33-41). A stainless steel mesh is positioned at the rear surface of the layer (col 4, ln 48-50). Goerz, Jr. et al. (US 5,472,769) disclose a soft body armor material with enhanced puncture resistance fabric from durable aramid fibers (abstract). An additional deflection layer can be made from a stainless steel mesh material (col 2, ln 24-30). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used either Dunbar's or Goerz, Jr's teaching of a stainless steel mesh layer in the explosion resistant material of Fingerhut et al. and Dickson et al., motivated by the desire to create an explosion resistant material with enhanced penetration resistance.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fingerhut et al. (US 6,237,793) and Dickson et al. (US 5,851,932), as applied to claims 1-12 and 14-16 above, and further in view Hollis, Sr. (US 3,969,563). Fingerhut et al. and Dickson et al. disclose the claimed invention except for the teaching that the panel further comprises at least one layer of gummy resin in the panel core.

Hollis, Sr. disclose a protective wall structure that has resistance to bullet impact (col 1, ln 23-27). Multi-layer cloth material is coated with microspheres in a binder of petroleum pitch (col 10, ln 56-67. It should be noted that the Examiner is equating Hollis'

Art Unit: 1771

petroleum pitch coating to the gummy resin of the present invention. In Applicant's present specification, on page 9, lines 3-5, Applicant discloses that the gummy resin can be a petroleum-based pitch. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used Hollis' petroleum pitch coating on the explosion resistant material of Fingerhut et al. and Dickson et al., motivated by the desire to create an explosion resistant material that has increased composite adhesion and enhanced resistance to penetration.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ula C. Ruddock whose telephone number is (703) 305-0066. The Examiner can normally be reached Monday through Thursday from 6:30 AM to 5 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor Terrel Morris can be reached at (703) 308-2414.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-2351.

Ula C. Ruddock *UCL*
Patent Examiner
Art Unit 1771
8/24/2003

Ula Ruddock